Firmware Update for EPROM Emulator

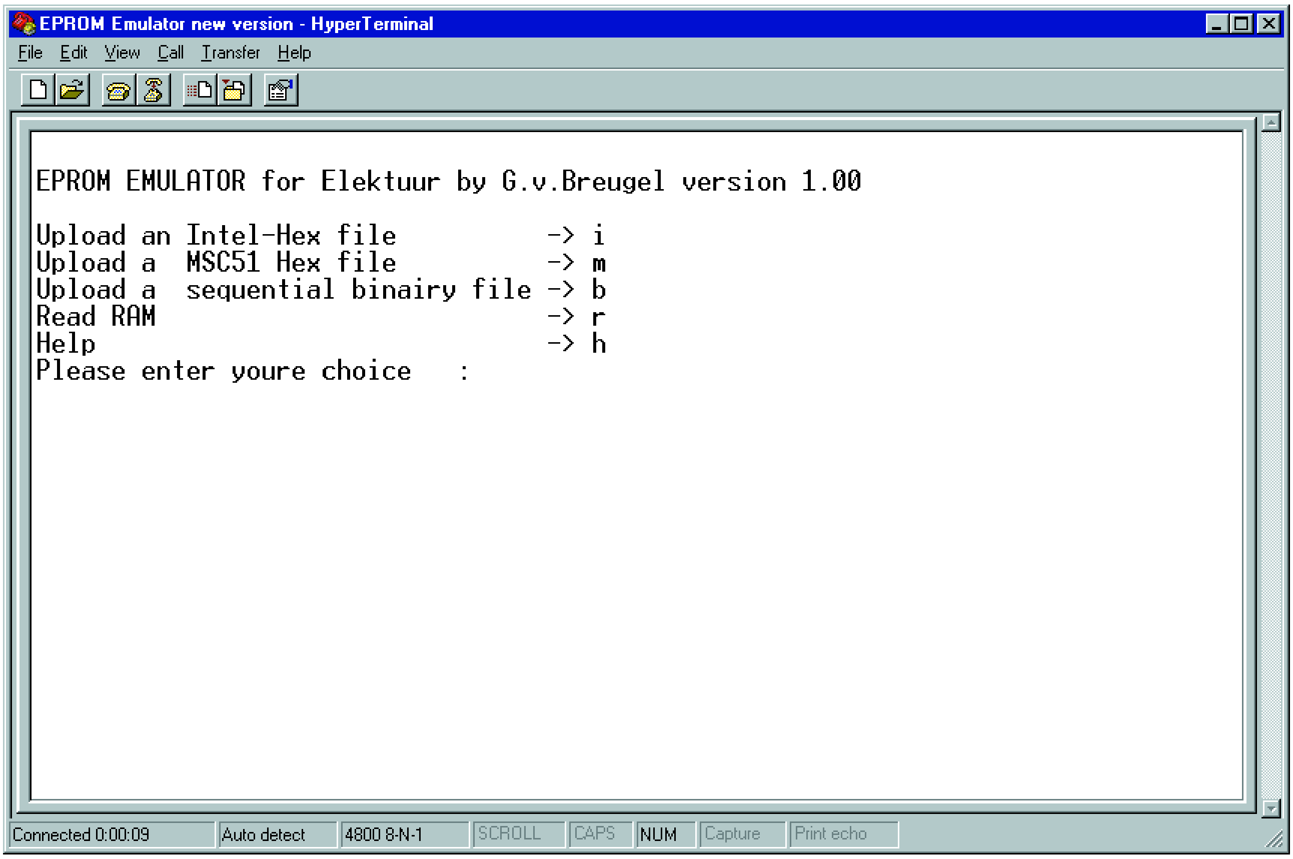
add MCS51 compatibility to our 27C256 Emulator

By G. van Breugel

Those of you who happily use the 'old' MCS51 assembler will be pleased to know that its dedicated file format can now be accepted by the popular 27C256 Emulator published in the January 2001 issue of Elektor. All you need is the free software update described in this article.

An EPROM emulator is likely to remain a useful tools for quite some time to come, because it allows users to debug and correct programs intended to run from EPROM, without going through the tedious and time consuming process of erasing and reprogramming an EPROM after any small change to the target program. The emulator's alternative to this drudgery is simple: edit the source code file, assemble, download and then restart the target system. The January 2001 issue of *Elektor Electronics* contains an article describing how to build such an EPROM emulator yourself. Although primarily intended for the popular 27C256, this emulator will also handle the 27C64, 27C128 and, if necessary, the 27C512.

This EPROM emulator was a 'hit' straight away, and has been built by


EPROM Emulator new version - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:09
Auto detect
4800 8-N-1
SCROLL
CAPS
NUM
Capture
Print echo

```
EPROM EMULATOR for Elektuur by G.v.Breugel version 1.00

Upload an Intel-Hex file         -> i
Upload a  MSC51 Hex file         -> m
Upload a  sequential binairy file -> b
Read RAM                         -> r
Help                             -> h
Please enter youre choice    :
```

Figure 1. The updated firmware will present a menu with four options.

many readers. ‘Old hands’ at the art of software development, however, found the design lacking in just one aspect: it was only suitable for the industry standard Intel Hex file format. You may know, there are several other, equally useful file formats commonly used to program EPROMs. One such format is ‘MCS51’ produced by the assembler wit the same name. Its main disadvantage is that it is only supported by the EMON51 monitor program which belongs with the incredibly popular **80C32 Single-Board Computer** published in the May 1991 issue.

Readers’ feedback indicates that many of you are still happily using the above mentioned MCS51 assembler and would like to see its rather special file format implemented on the 27C256 Emulator. The author has spent a few hours of his spare time to see how this could be done. The result of his efforts is an updated version of the control software for the EPROM emulator. Fortunately, hardware modifications were not necessary, so you can leave your soldering iron switched off.

What’s new?

After launching the new software you’ll be shown a menu with four options (**Figure 1**):

– Upload an Intel Hex file
– Upload an MCS51 hex file
– Upload a sequential binary file
– Read RAM

A small help function is also available. The above options should be self-explanatory. Once you’ve selected the desired file format, the object code file may be sent to the EPROM Emulator in ASCII.

In addition to Intel Hex, the new software also supports binary files and Elektor’s MCS51 format.

To reap the benefits of the updated emulator firmware, you can program your own processor using the Hex file 024107-11 which can be downloaded free of charge from our website www.elektor-electronics.co.uk (Free Downloads, September 2002). Those of you without access to the Internet or a suitable programmer will need to buy a ready-programmed controller which is available under number **024107-41** from Readers Services.

As soon as the microcontroller with the new firmware has been installed in the circuit again, HyperTerminal may be run, just as with eh previous version (HyperTerminal comes as part of your Windows operating system). Alternatively, you may use any other terminal emulation program. The communication parameters remain at **4800,N,8,1**.

After resetting the 27C256 Emulator, the menu that allows te Emulator to be controlled should appear on your monitor.

For the sake of completeness we should repeat that the ‘Elektor’ Hex format is marked ‘MCS51’.

Conclusion

The update is a breeze to install and should work spot on. In the (rare) case of problems, these may be solved quickly and efficiently with the aid of the Help function.

(024107-1)